

ABSTRACT

A treatment device which uses cold red and infrared radiation for the photodynamic stimulation of cells, especially cells of human tissue. The described device produces a constant energy radiation by the use of semiconductor and/or laser diodes, which furthermore radiate light in several separate wavelengths due to a special operation mode. With help of sensors the advanced controller system is able to test the patients for the needed radiation doses in order to avoid overstimulation. Furthermore the radiation openings in the applicators are advantageously covered with a polarization filter, whereby the absorption in the irradiated tissue is increased. The basic equipment consists of a standpillar, with which machine applicators are connected with a jointed arm. The machine applicators are adapted for the treatment of large area tissues, for example, the back of humans. The standpillar is freely movable on wheels and includes a control mechanism, whereby the various parameters for therapy can be adjusted and switched ON and OFF. The standpillar is also connected to a hand applicator designed for the treatment of small tissue areas, e.g., acupuncture points. Another version of the hand applicator is especially devised for dental treatment, whereby the head piece of the hand applicator can be connected with an expander containing an optical fiber. Photodynamic substances are introduced into tissue to be treated, which enhances the effects of light irradiation by the inventive device.